

19. THE LEATHER JACKET, *ALUTERA SCRIPTA* (OSBECK)
 FEEDING ON THE PORTUGUESE MAN-OF-WAR *PHYSALIA UTRICULUS*
 (LA MARTINIÈRE)

(With a text-figure)

The onset of monsoon in the eastern Arabian Sea is heralded by strong onshore winds in May-June. At Bombay, these winds result in the occurrence of swarms of the siphonophores *Porpita*, *Veleva* (popularly known as 'by-the-wind sailor'), and *Physalia*. These animals are then invariably found drifting on the sea surface or washed ashore.

Two species of leather jackets or file fishes are occasionally collected in the intertidal regions of Bombay in this season. They are the scribbled leather jacket, *Alutera scripta* (Osbeck) and the yellow-finned leather jacket, *Alutera monoceros* (Linnaeus). Although the colour pattern on their bodies suggests a life among seaweeds, the fishes are caught in open waters. They are quite uncommon, only an occasional specimen or two turning up in fish catches. They are slow, inefficient swimmers, and one might wonder how they are able to catch their prey or escape being eaten by predators.

These fishes have occasionally been displayed at the Taraporevala Aquarium, Bombay, but have not lived long in captivity. They are very choosy in their feeding; their small mouth can take in only small particles of food, with the consequence that they soon become emaciated and die.

It was, therefore, a fortuitous circumstance that enabled us to learn about their natural food. Some leather jackets were released in an aquarium tank containing *Physalia*. Normally, with any other fish, this would have meant immediate death for the fishes, as a chance brush with the Portuguese man-of-war's deadly tentacles would have paralysed the fishes. It was surprising, therefore, to see

that the fishes immediately went for the tentacles and nibbled them off. In a few minutes, a fish had eaten off all the tentacles of a dozen *Physalia*, until only the floats (pneumatophores) remained uneaten.

Both the Atlantic species of *Physalia*, *P. physalis* Linnaeus, and the Indo-Pacific species, *P. utriculus* (La Martinière) are known for their virulent venom. Among the casualties known to have been caused by Portuguese man-of-war in Indian seas are several cases, including one fatality, reported by Scott (1921). Surprisingly though, a few fishes, such as the man-of-war fish, *Nomeus gronovii*, and juvenile yellow jack, *Caranx bartholomaei*, associate with it, swimming among its tentacles. Although Panikkar & Prasad (1952) have described the association between the young of *Caranx kalla* Cuvier & Valenciennes and the medusa *Rhopilema hispidum* Maas, and Jones (1960) observed this fish under the 'umbrella' of the medusa *Mastigias papua* L. Agassiz, association of any fish with the Portuguese man-of-war in Indian waters has not been observed.

Quite a few animals make use of the Portuguese man-of-war's nematocysts (stinging cells). Thus the beautiful and delicate nudibranch, *Glaucus marinas* (Dupont) feeds on the nematocysts of *Physalia* and incorporates them into its cerata, to be utilized as a defence mechanism against its enemies. Jones (1963) found that the young of the octopus *Tremoctopus violaceus* Delle Chiaje picks up broken fragments of the tentacles of *Physalia* and holds them in its arms to be used against its enemies. The ocean sunfish, *Mola mola*, and the logger head turtle, *Caretta caretta*, have been reported

to feed on *Physalia* (Halstead 1965, p. 312). Although the orange filefish, *Alutera schoepfi*, is known to feed on another dangerous jellyfish, the sea nettle (*Chrysaora quinquecirrha*), it is not known to feed on the Portuguese man-of-war.

The occurrence of outbreaks of Ciguatera poisoning in man is now well known. It is caused by eating marine fishes which are normally non-poisonous, but which sometimes, due to their having consumed obnoxious animals or plants, become temporarily poisonous, the poison being known as ciguatoxin. In addition, many fishes belonging to the Order Tetraodoniformes (or plectognathi), such as the puffer fishes are also poisonous. In this case, however, the poison—tetrodotoxin, is different. The flesh can be safely eaten, but the gut, liver, gonads and skin are deadly.

There is confusion regarding the toxicity of the two leather jackets. Thus Day (1958, page 693) quotes Osbeck that *Monacanthus monoceros* 'looks like a flounder at a distance and has almost the same taste, but is not so

fat'. Munro (1955, page 275) has nothing to relate about these fishes except that *Alutera scripta* attains forty inches. Smith (1953, pp. 405, 406) states that *Alutera monoceros* 'is said to be excellent eating when skinned' (italics by the present author). Regarding *Osbeckia scripta*, Smith refers to its habit of standing on its head among weeds to escape detection, adding 'stated not to be edible'. But Halstead & Schall (1956), during their screening of fishes of the Cocos Islands for ciguatoxin, found *Aluteres monoceros* to be also toxic. Hashimoto *et al.* (1969) refer to a saying among the fishermen of Saipan that the viscera of *Alutera scripta*, when fed to pigs, might kill them, although the flesh is entirely non-toxic. Hashimoto *et al.* (1969a) have attributed the toxicity of this fish to its feeding on the zoantharian *Palythoa tuberculosa*, and call the toxin 'aluterin'.

The rarity of occurrence of leather jackets precludes the probability of the leather jackets being extensively used for human consumption, but present finding of their diet including an

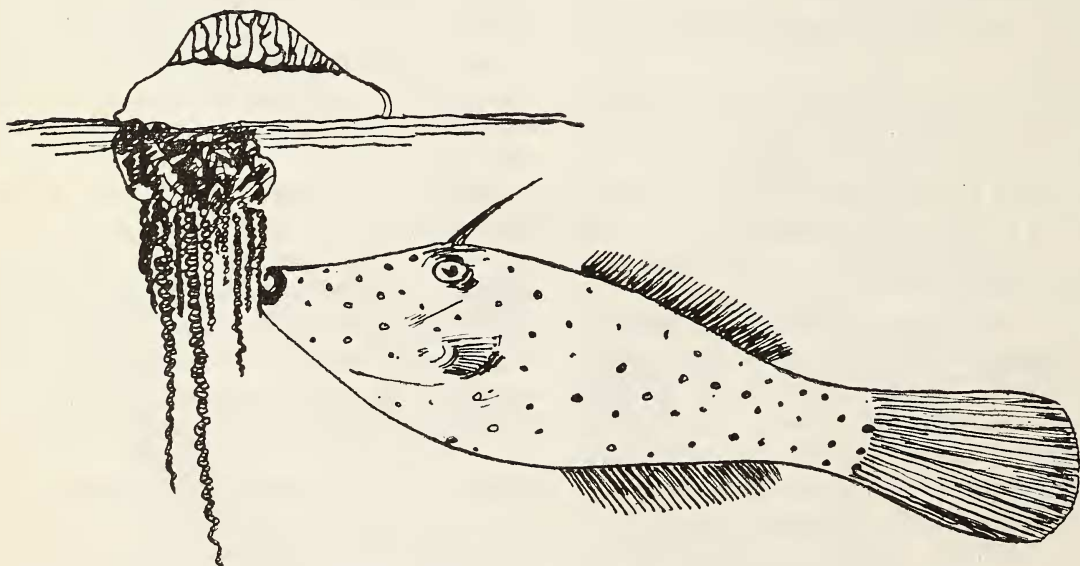


Fig. 1. Leather Jacket feeding on Portuguese Man-of-war.

extremely venomous animal may be connected to its flesh acquiring this toxicity, and due care should be taken in their consumption.

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20. SEXUAL DIMORPHISM IN THE JUMPING SPIDER *PHIDIPPUS* *PATELI* TIKADER (FAMILY: SALTICIDAE)

(With three text-figures)

Though sexual dimorphism is very common among spiders of the family Araneidae, it is not so among salticid spiders. In some spiders of the genus *Araneus* sometimes the male is four to six times smaller than the female and very differently coloured. There are also many cases in thomisid spiders where males are much smaller and have different colour patterns than the female.

The salticid spider *Phidippus pateli* was described by Tikader (1974) on the basis of female specimen received from Gujarat. At that time the male was unknown. Subsequently females of this species were collected in good numbers from Poona also. But unfortunately none of the males. At the same time we collected many male jumping spiders whose females were not known. Recently